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FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER

CHAWAN, SHEELA C

ART UNIT	PAPER NUMBER
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2625

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/052,463

**Applicant(s)**

MATSUTANI, SHIGEKI

**Examiner**

Sheela C Chawan

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2002.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-4, 6, 7, 11-14, 16, 17, 21 and 22 is/are rejected.  
7) ☒ Claim(s) 5, 8-10, 15 and 18-20 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date April 16, Jun 11, 02.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Drawings Objection***

2. Figures 14 - 22, should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 6, 8, 16 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "said registration means" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitation "said registration means" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "the registration step " in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "the registration step " in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 22 is rejected under 35U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 22 is directed to non-statutory subject matter. Since the computer program is merely a set of instruction capable of being executed by a computer, the computer program itself is not a process and office personal should treat a claim for a computer program, without the computer-readable medium needed to realize the computer program's functionality, as nonstatutory functional descriptive material. See – MPEP 2106.

***Claim Rejections - 35 U.S.C. § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,11, 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by S.H.Paek et al., " On-Line Korean Character recognition by Using Two Types of Neural Networks", Dept. of computer Science and Engineering, Pages 2113- 2116.

As to claim 1, S.H.Paek et al disclose an information processing apparatus (fig 3.2 page 2114 –2115) on-line handwritten Hangeul (Korean Characters) recognition comprising:

acquisition means for acquiring an input (note, acquiring input information corresponds to a user writing a character on a tablet using a pen like stylus, the tablet periodically samples coordinates of the hand written pattern and sends to the first network to be processed see page 2114, paragraph 3.1), coordinate sequence generated by sampling a handwritten input pattern at predetermined intervals (note, the input data consists of sequence of X, Y coordinates of points sampled by the tablet and generates a sequence of 40 equidistance points for each stroke such as (P<sub>1</sub>, P<sub>2</sub> ..... P<sub>40</sub>, page 2114, section 3.1);

line segment conversion means for converting pattern expressed by the input coordinate sequence into line segments by approximating the pattern by coupling Plurality of line segments (note, the input data consists of sequence of X, Y coordinates of points sampled by the tablet and generates a sequence of 40 equidistance points for each stroke such as (P<sub>1</sub>, P<sub>2</sub> ..... P<sub>40</sub>, page 2114, section 3.1) are coupled to form a plurality of line segments, page 2114, section 3.1);

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generation means for generating angle distribution data on the basis of directions (note, generating an eight direction codes of the handwritten sample, see page 2114, paragraph 3.1) of the line segments obtained by said line segment conversion means (note, generating a new sequence of 40 equi distance points on  $(P_1, P_2, \dots, P_{40})$ , for each stroke then calculating a new sequence of pairs of values such as  $(D_1, D_2, \dots, D_{39})$ , where  $D_1$  is pair of cosine and sine value between the line from  $P_1$  to  $P_{i+1}$  as a horizontal line based on relative position of consecutive stroke and forming an angle which is theta. The relative position of two consecutive strokes is represented by the direction of the beginning and the ending points of the current stroke, page 2114, see paragraph 3.1); and

matching means for executing a matching process of a pattern on the basis of the angle distribution data generated by said generation means (note, matching process takes place between the information of strokes codes and their relative position to identify the character, pages 2114-2115, paragraphs 3.2 and 4.1).

As to claim 11, see the rejection of claim 1 above.

As to claim 21, Paek et al disclose a storage medium that stores (fig 3.2, is neural network corresponds to storage medium) a control program for making a computer implement a method (fig 3.2, network structure inherently has computer which stores program in order to perform the function, page 2114 - 2115, paragraph 3.2).

As to 22, Paek et al disclose a computer program that comprises program codes

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for making a computer implement a method (fig 3.2, network structure inherently has computer which stores program in order to perform the function, page 2114 - 2115, paragraph 3.2).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 - 4, 6-7, 12-14, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over by S.H.Paek et al., " On-Line Korean Character recognition by Using Two Types of Neural Networks", Dept. of computer Science and Engineering, Pages 2113 - 2116), as applied to the claims 1,11, 21 and 22, above and further in view of Shojima et al., (US. 4,653,107).

Regarding claims 2 and 12, S.H.Paek et al., disclose on-line handwritten Korean character recognition method by using training data (section 4.1). Paek et al., is silent about registration means for registering a standard pattern on the basis of the angle distribution data generated by said generation means, and

wherein said matching means discriminates similarity of the handwritten input pattern using the data registered by said registration means.

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Shojima discloses on-line recognition method and apparatus for a handwritten pattern. The system comprises of:

registration means for registering a standard pattern on the basis of the angle distribution data generated by said generation means (see fig 7f corresponds to registration means, column 7, lines 50- 68, column 8, lines 1 – 20, see fig 12, a, b and c).

wherein said matching means discriminates similarity of the handwritten input pattern using the data registered by said registration means (fig 12, d, column 9, lines 11-37, 40-68, column 10, lines 1-3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Paek to include registration means for registering a standard pattern on the basis of the angle distribution data generated by said generation means, and wherein said matching means discriminates similarity of the handwritten input pattern using the data registered by said registration means. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Paek by the teaching of Shojima in order to reduced the operation time to extract the pattern by a factor of several ten or more as compared with the all-combination method (as suggested by Shojima at column 7, lines 35 - 38).

As to claims 3 and 13, S.H.Paek et al disclose the apparatus according to, wherein said generation means comprises:



setting means for setting as a reference line a line segment having a predetermined angle with respect to a horizontal direction on the basis of the input coordinate sequence (Page 2114, paragraph 3.1), and

said generation means generates the angle distribution data by calculating angles the respective line segments obtained by said line segment conversion means make with the reference line (page 2114, paragraph 3.1, 2115, first and second paragraph).

As to claims 4 and 14, S.H.Paek et al disclose the apparatus, wherein said setting means sets a line segment connects start and end coordinates input coordinate sequence the reference line (note, the input data consists of sequence of X, Y coordinates of points sampled by the tablet and generates a sequence of 40 equidistance points for each stroke such as  $P_1, P_2, \dots, P_{40}$ , than calculating a new sequence of pairs of values ( $D_1, D_2, \dots, D_{39}$ , where  $D_1$  is pair of cosine and sine value between the line from  $P_1$  to  $P_{i+1}$  as a horizontal line based on relative position of consecutive stroke and forming an angle which is theta. The relative position of two consecutive strokes is represented by the direction of the beginning and the ending points of the current stroke, page 2114, see paragraph 3.1).

As to claims 6 and 16, Paek et al disclose on-line handwritten Korean character recognition method by using training data (section 4.1). Paek et al., is silent about registration means registers angle distribution data defined by average angles at respective positions of plurality of angle distribution data obtained from a plurality of input coordinate sequences. However, Shojima discloses the apparatus according to,

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wherein said registration means registers angle distribution data defined by average angles at respective positions of plurality of angle distribution data obtained from a plurality of input coordinate sequences (column 9, lines 11-37, fig 12, a, b and c).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Paek to include registration means registers angle distribution data defined by average angles at respective positions of plurality of angle distribution data obtained from a plurality of input coordinate sequences. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Paek by the teaching of Shojima in order to reduced the operation time to extract the pattern by a factor of several ten or more as compared with the all-combination method (as suggested by Shojima at column 7, lines 35 - 38).

As to claims 7 and 17, Paek et al disclose the apparatus, wherein said acquisition means acquires an input coordinate sequence using a digitizer (note, acquiring input information corresponds to a user writing a character on a tablet using a pen like stylus, the tablet periodically samples coordinates of the hand written pattern and sends to the first network to be processed see page 2114, paragraph 3.1).

***Allowable Subject Matter***

7. Claims 5, 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 8 -10 and 18 - 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, second paragraph, set forth in this office action.

***Other prior art cited***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takasu et al., (US. 5,835,632) discloses image processing method and an image processing apparatus.

Obata et al. , (US.5,825,906) discloses signature recognition system.

Crane et al., (US.4,718,102) discloses process and apparatus involving pattern recognition.

Lipscomb (US.5,038,382) discloses multi-scale recognizer for hand drawn strokes.

Kashi et al., (US.5,828,772) discloses method and apparatus for parametric signature verification using global features and stroke- direction codes.

***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is 703-305- 4876. The examiner can normally be reached on Monday - Thursday 8 - 6.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 703-308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sheela Chawan  
Patent Examiner  
Group Art Unit 2625  
Dec 8, 2004